



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,603	10/27/2003	Jan Evert Van Der Werf	081468-0306523	6464

909 7590 05/23/2007
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT	PAPER NUMBER
----------	--------------

2886

MAIL DATE	DELIVERY MODE
-----------	---------------

05/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/693,603	Applicant(s) WERF ET AL.	
	Examiner Michael P. Stafira	Art Unit 2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 21-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/30/2007</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omae et al. ('793) and in further view of Lassiter et al. (2004/0043303).

Claim 1

Omae et al. ('793) discloses printing a reference pattern (Fig. 1, Ref. MA) on a reference substrate (Fig. 1, Ref. PB) using the patterning device (Col. 3, lines 36-43); printing a pattern for manufacture of a device on a production substrate different from said reference substrate using the patterning device (Col. 8, lines 44-55); printing a test pattern on a test substrate using the patterning device; and comparing the printed test pattern to the printed reference pattern to detect a defect in the patterning device (Col. 3, lines 45-65).

Omae et al. ('793) substantially teaches the claimed invention except that it does not show disclose a method of using a patterning device and a beam of radiation. Lassiter et al. (2004/0043303) shows that it is known to provide a pattern device (Fig. 6, Ref. photomask) and a beam of radiation (Fig. 6, Ref. illuminator)(Para. 0009) for an apparatus for the manufacturing of wafers. It would have been obvious to combine the device of Omae et al. ('793) with the patterning device and radiation beam of Lassiter et al. (2004/0043303) for the purpose of

Art Unit: 2886

providing a decrease in production time for manufacturing a semiconductor wafer, therefore allowing the amount of wafers manufactured to increase.

Claim 2

Omae et al. ('793) discloses the claimed invention except for the substrate is a silicon wafer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Omae et al. ('793) with the silicon wafer since it was well known in the art that using silicon wafers is the most economical material for mass production, therefore lowering manufacturing costs.

Claim 3

Omae et al. ('793) discloses the claimed invention except for the silicon wafer having a SiO₂ layer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Omae et al. ('793) with the SiO₂ layer since it was well known in the art that using such a layer improves image pattern repeatability, therefore decreasing the amount of waste.

Claim 4

Omae et al. ('793) discloses the test substrate is the reference substrate (See Fig. 1, Ref. PB).

Claim 5

Omae et al. ('793) the printed test pattern is a pattern in developed resist (Col. 3, lines 53-55).

Claim 6

Omae et al. ('793) further discloses the reference pattern is printed at a plurality of

Art Unit: 2886

different locations on the reference substrate (Fig. 1, Ref. MA, P11-P13).

Claim 7

Omae et al. ('793) further discloses individual printed reference patterns are spaced such that an individual test pattern can be printed beside each individual printed reference pattern (See Fig. 1).

Claim 8

Omae et al. ('793) further discloses the printed test pattern to the printed reference pattern the patterned test substrate and reference substrate are scanned by at least one optical defect inspection tool (Fig. 2, Ref. 11).

Claim 9

Omae et al. ('793) discloses the claimed invention except for the reference pattern substrate and test pattern substrate are scanned simultaneously. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Omae et al. ('793) with simultaneously scanning since it was well known in the art that scanning the substrates simultaneously increases the speed of the inspection, therefore decreasing the manufacturing time of the substrates.

Claim 10

Omae et al. ('793) discloses wherein multiple comparisons take place between multiple printed reference patterns and multiple printed test patterns (Col. 8, lines 44-55).

Claim 11

Omae et al. ('793) further discloses wherein majority voting determines location of the defect in the patterning device (Col. 8, lines 56-67).

Claim 12

Omae et al. ('793) discloses the claimed invention except for the patterning device is a photolithography mask. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Omae et al. ('793) with the photolithography mask since it was well known in the art that using a photolithographic mask produces reliable pattern information, therefore decreasing the amount of defect transferred a substrate.

Claim 21

Omae et al. ('793) discloses generating a reference pattern (Fig. 1, Ref. Ma) on a first substrate (Fig. 1, Ref. PB) using a projection beam of radiation and the patterning device; generating a pattern on a second substrate using the projection beam of radiation and the patterning device; and comparing the reference pattern on the first substrate to the pattern on the second substrate to detect a defect in the patterning device (Col. 3, lines 45-65).

Omae et al. ('793) substantially teaches the claimed invention except that it does not show disclose a method of using a patterning device and a beam of radiation. Lassiter et al. (2004/0043303) shows that it is known to provide a pattern device (Fig. 6, Ref. photomask) and a beam of radiation (Fig. 6, Ref. illuminator)(Para. 0009) for an apparatus for the manufacturing of wafers. It would have been obvious to combine the device of Omae et al. ('793) with the patterning device and radiation beam of Lassiter et al. (2004/0043303) for the purpose of providing a decrease in production time for manufacturing a semiconductor wafer, therefore allowing the amount of wafers manufactured to increase.

Claim 22

Omae et al. ('793) discloses the pattern is a test pattern and the second substrate is a test

Art Unit: 2886

substrate (See Fig. 1).

Claim 23

Omae et al. ('793) discloses the pattern is a test pattern and the second substrate is the first substrate (See Fig. 1).

Claim 24

Omae et al. ('793) discloses the pattern comprises features of a manufactured device and the second substrate comprises the manufactured device (Col. 8, lines 44-55).

Response to Arguments

3. Applicant's arguments with respect to claims 1-12, 21-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

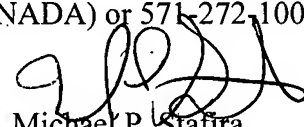
Art Unit: 2886

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael P. Stafira
Primary Examiner
Art Unit 2886

May 16, 2007